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**ATTORNEY DOCKET NO. 2001180-0077 (HU 2060-02 US NATL)  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Schreiber <i>et al.</i>	Examiner:	Solola, Taofiq A.
Serial No.:	10/649,532	Art Unit:	1639
Filing Date:	August 27, 2003		
Title:	DIHYDROPYRANCARBOXAMIDES AND USES THEREOF		

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Sir:

**DECLARATION UNDER 37 C.F.R. 1.131**

I, Robert A. Stavenger, Ph.D., declare as follows:

1. I am an inventor of the subject matter disclosed and claimed in United States Patent Application Serial No. 10/649,532 ('532 application) filed August 27, 2003, and entitled "DIHYDROPYRANCARBOXAMIDES AND USES THEREOF". This application claims priority to United States provisional patent application Serial No. 60/406,140, filed on August 27, 2002.

2. This Declaration is presented for the purpose of removing from consideration by the Examiner the following two papers:

(i) Clemons *et al.* "A one-bead, one-stock solution approach to chemical genetics: part 2", *Chem. Biol.* 8:1183-1195, 2001 (hereinafter, "Clemons"). As indicated on the front page of the paper, the article first published online on November 7, 2001. Thus, the paper first became available to the public on November 7, 2001.

(ii) Blackwell *et al.* "Decoding Products of Diversity Pathways from Stock Solutions Derived from Single Polymeric Macrobeads", *Angew. Chem. Int. Ed.* 40(18):3421-3425, 2001 (hereinafter, "Blackwell"). The paper first became available to the public on September 14, 2001.

Therefore, both the Clemons and Blackwell papers became available to the public less than one year prior to the filing of the provisional application to which the present application claims priority.

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4116663v1Attorney Docket No.: 2001180-0077  
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The present Declaration is presented in accordance with In re Stoppel, 113 U.S.P.Q. 77 (CCPA 1957) and establishes conception and reduction to practice of the invention in this country before September 14, 2001.

3. While the publication date of the edition of *Angewandte Chemie International Edition* in which Blackwell appeared was September 17, 2001, the article was first published online on September 14, 2001 as indicated in the print out of the Journal's web page (Exhibit 1, page 5).

4. The inventors of the claimed subject matter of United States Patent Application Serial No. 10/649,532 are Stuart L. Schreiber, Robert A. Stavenger, Timothy J. Mitchison, and Zoltan Maliga.

5. On a date before September 14, 2001, Stuart L. Schreiber, Timothy J. Mitchison, and Zoltan Maliga and I conceived and reduced to practice our invention of dihydropyrancarboxamide compounds and uses thereof.

6. Exhibit 2 is a copy of several pages from my laboratory notebook, with dates blacked out. Exhibit 2 provides evidence of conception and actual reduction to practice of the claimed invention prior to September 14, 2001. In particular, pages 17-20, 22-24 and 26-29 include a description of a synthesis of a library of dihydropyrancarboxamide compounds, using vinyl ether, unsaturated ketoester and amine building blocks disclosed in the specification, as filed. For example, page 17 describes vinyl ether building blocks BB1-A through BB1-H depicted on page 61 of the specification. Page 20 describes unsaturated ketoester building blocks BB2-A through BB2-J depicted on page 62 of the specification. Page 26 describes amine building blocks BB3-A through BB3-Y depicted on page 66 of the specification. Finally, pages 31-34 include a description of the decoding process of the dihydropyrancarboxamide library. The notes were prepared in the United States of America.

7. The originals of these documents bear dates prior to September 14, 2001.

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8. All statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patents issued thereon.



Robert A. Stavenger, Ph.D.

Aug 30, 2006

Date

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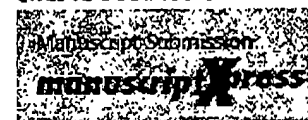
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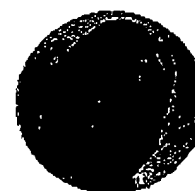
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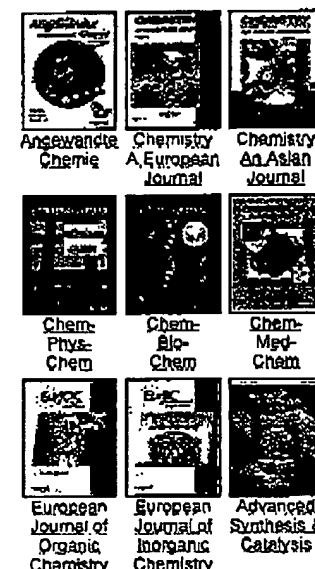
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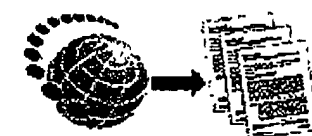
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Naokazu Kano, Noriyo Nakagawa, Takayuki Kawashima

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Chi-Keung Lam, Thomas C. W. Mak

Published Online: 14 Sep 2001

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Valery V. Fokin, K. Barry Sharpless

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Lukas J. Gooßen, K. Ghosh

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**A Polyhedral Aluminum Compound with an  $Al_4C_4N_4$  Framework (p 3461-3464)**

Wenjun Zheng, Andreas Stasch, Jörg Prust, Herbert W. Roesky, Fanica Cimpoesu, Mathias Noltemeyer,

Hans-Georg Schmidt

Published Online: 14 Sep 2001

DOI: 10.1002/1521-3773(20010917)40:18&lt;3461::AID-ANIE3461&gt;3.0.CO;2-3

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**Anion-Templated Syntheses of Rhombohedral Silver-Alkynyl Cage Compounds (p 3464-3467)**

Daniela Rais, John Yau, D. Michael P. Mingos, Ramón Vilar, Andrew J. P. White, David J. Williams

Published Online: 14 Sep 2001

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**The Self-Assembly of an Unexpected, Unique Supramolecular Triangle Composed of Rigid Subunits (p 3467-3469)**

Manuela Schweiger, S. Russell Seidel, Atta M. Arif, Peter J. Stang

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Ryo Akiyama, Shū Kobayashi

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**A Light-Harvesting *tert*-Phosphane Ligand Bearing a Ruthenium(II) Polypyridyl Complex as Substituent (p 3472-3474)**

Masahisa Osawa, Mikio Hoshino, Yasuo Wakatsuki

Published Online: 14 Sep 2001

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**The Hexaphosphapentaprismane  $P_6C_4tBu_4$ : A "Jaws-Like" Cage Molecule That Bites! (p 3474-3477)**

Mehmoud M. Al-Ktaifani, Daniel P. Chapman, Matthew D. Francis, Peter B. Hitchcock, John F. Nixon,

László Nyulászi

Published Online: 14 Sep 2001

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**Book Review**

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Günter Hermann

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Rainer Haag

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### Web Site

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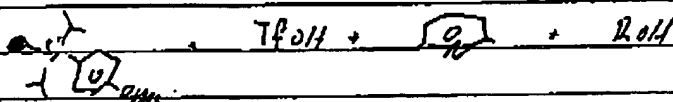
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15 pages

17

Making the library - Step 1 - loading.



Mon	1.43mg/g resin	150.07 (1.896)	107.16 (0.910)	see below
gms	1.62mg x 8 =	12.00ul	35.0ul	
med	0.375 x P	2.25	2.0	0.75
eq	1.0	6.0	8.0	2.0

Resin (in P10 columns) suspended in fresh 2% TFA/CH<sub>2</sub>Cl<sub>2</sub> (v/v) (3mL) - allowed to stand for 30 min. Filtered (Ar pressure) - washed (4 x 3mL x 2min CH<sub>2</sub>Cl<sub>2</sub>) - TFAH (1g) - 3% soln in CH<sub>2</sub>Cl<sub>2</sub> - 8.6mL added - resin turned orange immediately - eventually red.

allowed to stand (agitated occasionally)

for 25 min. Filtered

+ washed as above and

left in 2mL CH<sub>2</sub>Cl<sub>2</sub>.

Residue added +

color discharged - allowed

to stand for 15 min

then vinyl ether (as soln

in 1mL CH<sub>2</sub>Cl<sub>2</sub>) added

Allowed to stand for

20 min then washed

3 x 5mL x 2min CH<sub>2</sub>Cl<sub>2</sub> then

1 x 5mL x 15 min TFAH then

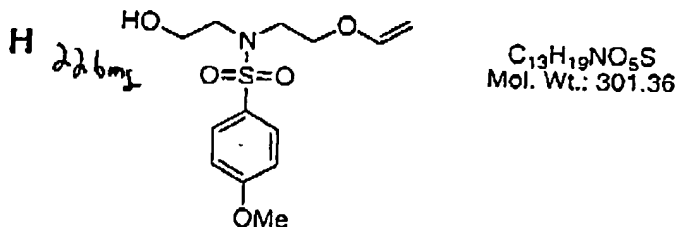
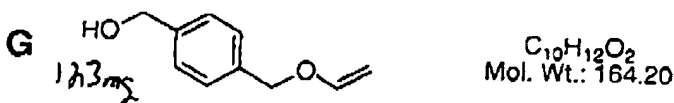
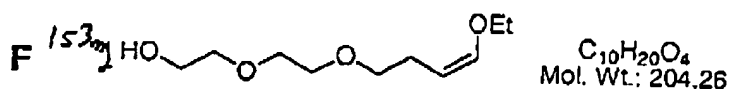
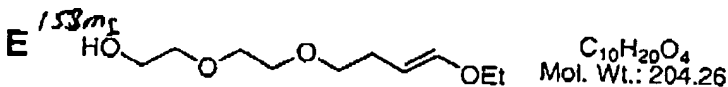
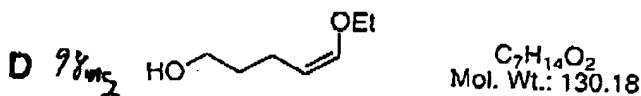
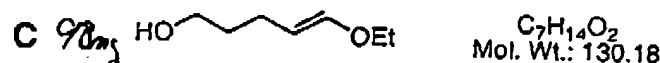
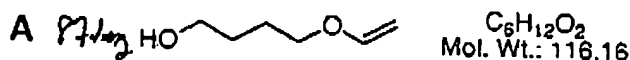
4 x 5mL x 15 min CH<sub>2</sub>Cl<sub>2</sub>

drind (first vac. to

filter, then hi vac. - 2h)

proceed to prep 1st

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Making the Library - step 2 - 1st encoding

8 Resin pools from pp 17 A-H

Scheme →

resin pool	T <sub>2</sub> B (C <sub>4</sub> Cl <sub>3</sub> )	T <sub>4</sub> B (C <sub>5</sub> Cl <sub>3</sub> )	T <sub>1</sub> A (C <sub>3</sub> Cl <sub>5</sub> )	T <sub>2</sub> A (C <sub>4</sub> Cl <sub>5</sub> )
A	X			
B		X		
C			X	
D				X
E	X	X		
F	X		X	
G	X			X
H		X	X	

## Procedure:

each batch of resin placed in dry, 8 mL vial.  
 tags added (16.8 mm for 16.8 mm conc TAG 50% total  
 conc ~~is~~ (in 4 mL CH<sub>2</sub>Cl<sub>2</sub>) is  $6.7 \times 10^{-5}$  moles/tag for  
 one (1) tag steps (A, B, C, D) and  $3.36 \times 10^{-5}$  moles/tag for  
 two (2) tag steps (E, F, G, H) → see weights on next  
 page 'd' - notes no addition

cat:

(Ph<sub>2</sub>CCl<sub>2</sub>)<sub>2</sub>Ph<sub>2</sub>

The dry tag + resin was put under Ar & CH<sub>2</sub>Cl<sub>2</sub> added  
 to each vial (4 mL) - shaken for 1 h @ rt. then  
 catalyst sol. (4 mL of 2.5 mg/mL) added w/ shaking  
 shaken 4 h then filtered and washed

2 × 15 min × 5 mL CH<sub>2</sub>Cl<sub>2</sub> 1 × 5 mL × 5 min THF 1 × 5 mL × 5 min THF  
 2 × 5 mL × 10 min THF, 3 × 5 mL × 15 min CH<sub>2</sub>Cl<sub>2</sub> - dried

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(cont.)

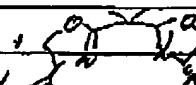
resin pool	T <sub>2</sub> B (C <sub>4</sub> Cl <sub>3</sub> ) mw 443.7	T <sub>4</sub> B (C <sub>6</sub> Cl <sub>3</sub> ) mw 471.75	T <sub>1</sub> A (C <sub>3</sub> Cl <sub>5</sub> ) mw 498.58	T <sub>2</sub> A (C <sub>4</sub> Cl <sub>5</sub> ) mw 512.61
A	29.7 mg	∅	∅	∅
B	∅	31.8 mg	∅	∅
C	∅	∅	33.5 mg	∅
D	∅	∅	∅	34.5 mg
E	14.9 mg	15.9 mg	∅	∅
F	14.9 mg	∅	16.7 mg	∅
G	14.9 mg	∅	∅	17.2 mg
H	∅	15.9 mg	16.7 mg	∅

Resin pooled + rotated in solvent 1x15mL x 30 min THF, 3x15mL x 30 min CH<sub>2</sub>Cl<sub>2</sub>  
 dried  
 → 2.12g resin after drying. divide into 20 equal  
 portions → 106mg each. Take these on to  
 cyclorad step. see next page

20

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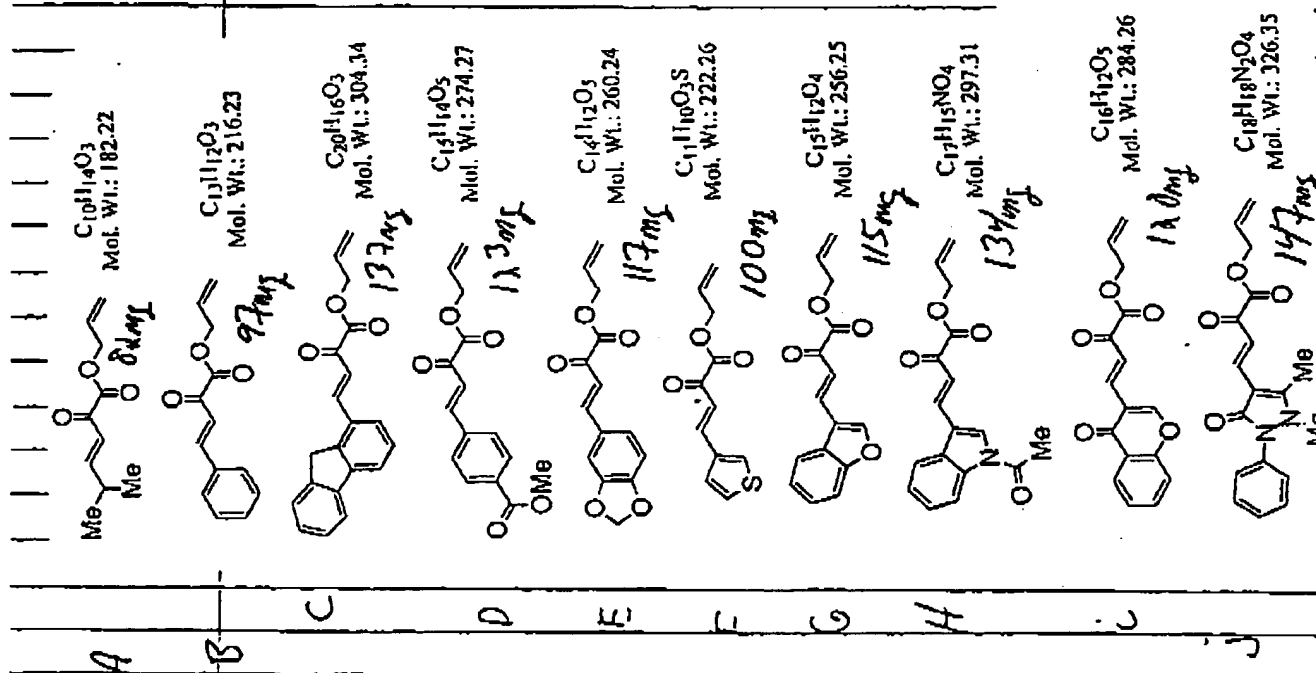
Making the ether, step 3:  
Cyclization.

vinyl ether resin +  + Cu(OAc)<sub>2</sub> + 48 ms  
(3) cat

stock soln of catalyst = 144mg Bisox 3 + 173mg Cu(OAc)<sub>2</sub>  
+ 50mg solvent in 12.8mL THF stored @ rt for 1h  
deep green color

Resin from 19 (20 vials) added to vials containing  
each vial = Diene 7 (see below next, + 10mg solvent) then put under Ar  
0.15 mmol of + 800µL dry THF added, followed by 800µL catalyst  
min. soln (2.0 mol %). Vials shaken for 20 h then  
washed - 4x5mL x 30 min THF, 3x5mL x 20 min CH<sub>2</sub>Cl<sub>2</sub>  
dried and moved to next step (pp 22-23)  
use 3mg of Diene - 0.45mmol

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Making the library Step 4 - tagging 2

The 20 pools from pp 20-21 were treated as follows -

Resin and tags (see next page for masses. - 16.8 mM Tag Soln in 1.6 mL  $\text{CH}_2\text{Cl}_2$  is  $2.688 \times 10^{-5}$  mol/tag for 1 tag (20A-20E)  $1.344 \times 10^{-5}$  mol/tag for 2 tags (20F-21E) and  $0.896 \times 10^{-5}$  mol/tag for 3 tags (21F-21J).  $\phi = \text{no add.}$

Dry resin and tag in 1.6 mL dry vial under Ar. 1.6 mL  $\text{CH}_2\text{Cl}_2$  added and shaken gently for 1 h. then catalyst (1.6 mL of 2.5 mg/mL soln in  $\text{CH}_2\text{Cl}_2$ ) added and vials shaken overnight.

see Filtered & washed 2 x 5 mL x 15 min  $\text{CH}_2\text{Cl}_2$ , 2 x 5 mL x 15 min THF, 1 x 5 mL x 6 h THF, 2 x 5 mL x 15 min THF, 7 x 5 mL x 15 min  $\text{CH}_2\text{Cl}_2$

Resin pool	T3A (C5C15) mw 526.64	T4A (C6C15) mw 540.67	T5A (C7C15) mw 554.70	T6A (C8C15) mw 568.73	T7A (C9C15) mw 582.76
20A	X				
20B		X			
20C			X		
20D				X	
20E					X
20F	X	X			
20G	X		X		
20H	X			X	
20I	X				X
20J		X	X		
21A		X		X	
21B		X			X
21C			X	X	
21D			X		X
21E				X	X
21F	X	X	X		
21G	X	X		X	
21H	X	X			X
21I	X		X	X	
21J	X		X		X



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(work)

Resin pool	T3A (C5C15) mw 526.64	T4A (C6C15) mw 540.67	T5A (C7C15) mw 554.70	T6A (C8C15) mw 568.73	T7A (C9C15) mw 582.76
20A	14.2mg	∅	∅	∅	∅
20B	∅	14.5mg	∅	∅	∅
20C	∅	∅	14.9mg	∅	∅
20D	∅	∅	∅	15.3mg	∅
20E	∅	∅	∅	∅	15.7mg
20F	7.1mg	7.3mg	∅	∅	∅
20G	7.1mg	∅	7.5mg	∅	∅
20H	7.1mg	∅	∅	7.6mg	∅
20I	7.1mg	∅	∅	∅	7.9mg
20J	∅	7.3mg	7.5mg	∅	∅
21A	∅	7.3mg	∅	7.6mg	∅
21B	∅	7.3mg	∅	∅	7.9mg
21C	∅	∅	7.5mg	7.6mg	∅
21D	∅	∅	7.5mg	∅	7.9mg
21E	∅	∅	∅	7.6mg	7.9mg
21F	4.7mg	4.8mg	5.0mg	∅	∅
21G	4.7mg	4.8mg	∅	5.1mg	∅
21H	4.7mg	4.8mg	∅	∅	5.2mg
21I	4.7mg	∅	5.0mg	5.1mg	∅
21J	4.7mg	∅	5.0mg	∅	5.2mg

the resin sets (20A-J) + (21A-J) were pooled  
to give 20-pool and 21-pool (ie two enantiomeric  
pools). Nitro by worked in solvent 2 x 15 mL x 30 min, THF  
3 x 15 mL x 15 min  $\text{CH}_2\text{Cl}_2$  then each pool dried to give

pool 20  $\rightarrow$  1.4238g  $\rightarrow$  split out 1/2  $\rightarrow$  49.1mg  
pool 21  $\rightarrow$  1.4470g  $\rightarrow$  split out 1/2  $\rightarrow$  49.9mg

take to next step (pg 24)

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Making the library, step 5 - deallylation!resin = (Ph<sub>3</sub>Pd, Pd,  $\frac{10}{20}$   $\xrightarrow{\text{THF}}$ 

mol	-	1155.8	154.19
amount		1.73g	1.62g
mol	1.5	1.5	10.5
g	1.0	1.0	10

Both resin pools treated as below.

Ph-cat dissolved in 26 mL THF, resin added  
 followed by triethylamine acid + deep red mixture  
 shaken for 12h.

Filtrate and washed 4x 15 mL x 1h THF, 2x 15 mL x 15min DMF,  
 1x 15 mL x 15min THF, 1x 15 mL x 15min DMF, 4x 15 mL x 15min CH<sub>2</sub>Cl<sub>2</sub>  
 then dried.

from 20 pool → 1.776g

from 21 pool → 1.356g

Each pool then split into 26 equal portions

ie 20 pool → 51.4mg

21 pool → 52.7mg

and proceeded to next step  
 (pg 26-27)

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Making the library Step 6: amide formation

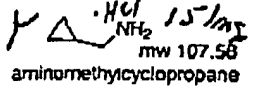
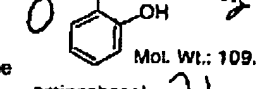
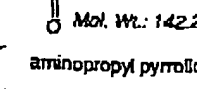
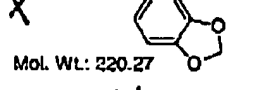
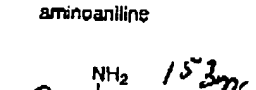
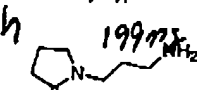
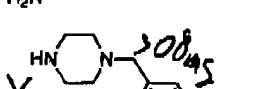
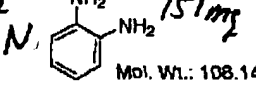
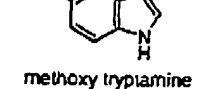
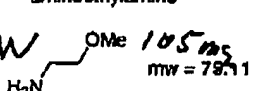
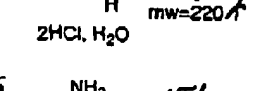
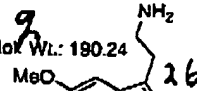
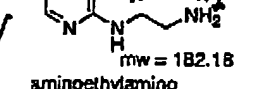
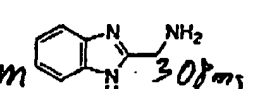
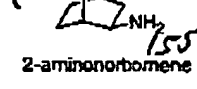
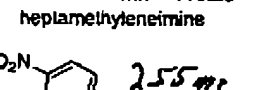
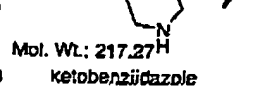
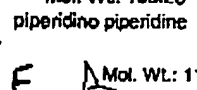
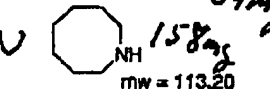
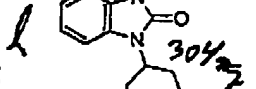
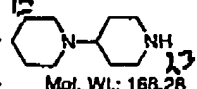
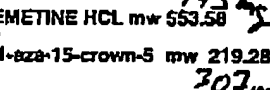
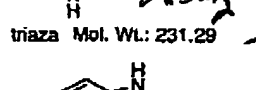
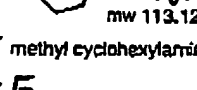
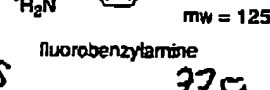
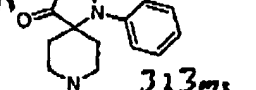
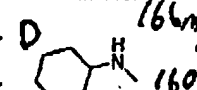
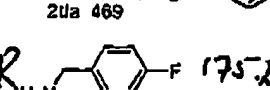
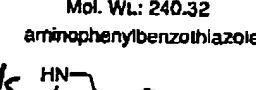
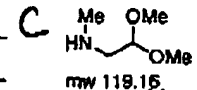
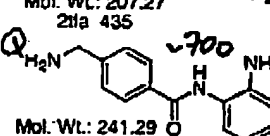
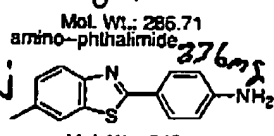
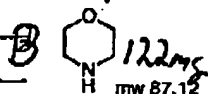
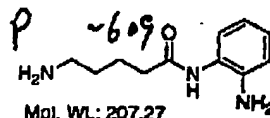
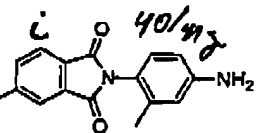
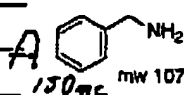
acids + amines + PyBOP + iPr<sub>3</sub>NH<sub>2</sub> →

mw	(var)	520.3	129.25 (0.742)
----	-------	-------	----------------

quant		290mg	90.4L
-------	--	-------	-------

mg	0.056	0.56	
----	-------	------	--

g	1.0	10	10
---	-----	----	----



Stock solns of  
amines made up  
1.5 equiv (1.7 mols)  
each amine in 1.25 ml  
DMF. 500.4 (0.56 mmol)  
will then be added  
to each rxn - see next  
page.

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26 → use resin from "20 pool"

27 → use resin from "41 pool"

To each vial of resin a stock soln of  $\text{CH}_2\text{Cl}_2/\text{PyBop}$  was added (1.5 mL  $\text{CH}_2\text{Cl}_2$  ~ 290 mg PyBop). Then ~500-600  $\mu\text{L}$  DMF/wine stock solns (on page 26) added to appropriate vials. - some were not homogeneous - added as slurry. Then iPr<sub>3</sub>NET (100  $\mu\text{L}$ ) added to every vial, w/ extra again if the wine was added as a slurry (m.p. g. y).

Shaken overnight (12h)

Filtered and washed 2 x 1 mL x 30 min  $\text{CH}_2\text{Cl}_2$ , 2 x 1 mL x 30 min DMF, 2 x 1 min x 1 mL THF. 3 x 1 mL x 30 min  $\text{CH}_2\text{Cl}_2$ , dried under high vacuum and kept separated in tubes.

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*LCMS of library*

Resin pool	LCMS sample	Resin pool	LCMS sample
26a	1, 2	27a	51, 52
26b	3, 4	27b	53, 54
26c	5, 6	27c	55, 56
26d	7, 8	27d	57, 58
26e	9, 10	27e	59, 60
26f	11, 12	27f	61, 62
26g	13, 14	27g	63, 64
26h	15, 16	27h	65, 66
26i	17, 18	27i	67, 68
26j	19, 20	27j	69, 70
26k	21, 22	27k	71, 72
26l	23, 24	27l	73, 74
26m	25, 26	27m	75, 76
26n	27, 28	27n	77, 78
26o	29, 30	27o	79, 80
26p	31, 32	27p	81, 82
26q	33, 34	27q	83, 84
26r	35, 36	27r	85, 86
26s	37, 38	27s	87, 88
26t	39, 40	27t	89, 90
26u	41, 42	27u	91, 92
26v	43, 44	27v	93, 94
26w	45, 46	27w	95, 96
26x	47, 48	27x	97, 98
26y	49, 50	27y	99, 100
20 cycloaddition	101, 102	21 cycloaddition	103, 104
20 pool (acid)	105, 106	21 pool (acid)	107, 108

*single batch in 700 mL eppendorf tubes,  
treated w/ 7.12.5 g/L 85/10/5 THF/pyr/HF-pyr  
for 1.5 h, then treated w/ 12.5 uL TMCMe for 30 min.  
transferred solvent  
plate evaporated the solvent, added 20 uL CH<sub>2</sub>Cl<sub>2</sub> and transferred  
to autosampler vial.*

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Demo comp change:

Rein pool	mass	# of bnd. (counted)
RAS-2-292a	58.5mg	339
RAS-2-292c	47.2mg	262
RAS-2-294a	48.9mg	304
RAS-2-294c	37.9mg	250
RAS-2-297a	38.3mg	236
RAS-2-297c	47.0mg	260

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LCMI Data: 1 from pp 2 P.

1st of 0 1 2nd  
 R2nd  
 ie aarR

Ambr	Sample #	mon	structure (L, M, S)	priority
Ambr A 107	1	571.7	hf	795
	2	539.8	gj	
	51	487.8	gd	
	52	417.9	bf	
B 87	3	552.7	hf	
	4	425.9	be	
	53	352.0	ba	
	54	512.8	?	
C 119.16	5	447.9 415.9	ca, fa, gf, cg, dg	
	6	2447.4, 415.9	ca, fa, gf, cg, dg	
	55	512.8	bc	
	56	458.9, 416	ch, dh	
D 112.12	7	386.0 442	ca, fa, gf, cg, dg	
	8	402.0	GA, CB, DB	
	57	469.9	ci, di	
	58	445.9	ad, adce	
E 168.28	9	514.9	cd, dd	
	10	500.9	ad, ce, de	
	59	456.9	ga, cb, db	
	60	490.9	gb	
F 111.18	11	473.9	eb, fb, ac, bd, gg	
	12	479.9	ef, ff	
	61	433.9	gb	
	62	614.7	he	

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glim	sample	mass	structure
G 190.27	13	592.8	cg, fg
	14	596.8	ce, fe
	63	574.8	aj
	64	573.8	gb
h 142.20	15	540.9 494.9	1/1 cj, dj
	16	497.9	ab
	65	452.8	bf
	66	540.9	cj, dj
i 286.71	17	582.7 / 484.7	? cf, df
	18	297.0 / 484.7	MLSS
	67	282.0 / 484.7 576.7	ga, cb, db
	68	674.7	be
j 240.72	19	640.8	1/1 cj, dj
	20	637.7	cj, dj
	69	MLSS	
	70	529.8	ga, cb, db
k 231.77	21	563.8	ad, ce, de
	22	429.8 512.8	?
	71	651.8	cd, fd
	72	674.8, 591.8	ee, fe
l 217.77	23	492.8, 407.8	af
	24	617.8	?
	73	595.8, 539.8	ef, ff
	24	? 583.7	ge
m 222.01 1.147	25	419.9?	?
	26	545.8	cj, dj
	75	590.8	gh
	26	465.8	ae



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Arise sample mail structure

N { 17 540.8  
108.14 { 18 655.7  
77 506.8  
78 518.8 577

2j  
hc  
cj, dj  
ht

O { 29 294.0 383  
109.13 { 30 ? 318 353.9 ?  
79 2 521.8, 552.8  
80 792.9, 492.8, 431.8

ab  
ec, fc  
gi

P { 31 602.9, 621.7 111  
207.17 { 32 633.8 111 ?  
81 565.8 low ?  
82 new

bj  
eh, fh  
?

Q { 33 626.8, 644.7  
271.27 { 34 684.7  
83 523.8  
84 585.8

gh  
eh, fh  
bf  
bg

R { 35 412.9  
115.15 { 36 373.9  
85 467.8  
86 411.9

ga, cb, db  
? 2  
cf, df  
gi  
gd, ce, de

S { 37 597.3 640.7  
38 276.0  
353.58 { 87 ? 242.1, 401.9  
88 242.1

?

T { 39 513.9  
271.27 { 40 617.8  
89 532.8  
90 629.8

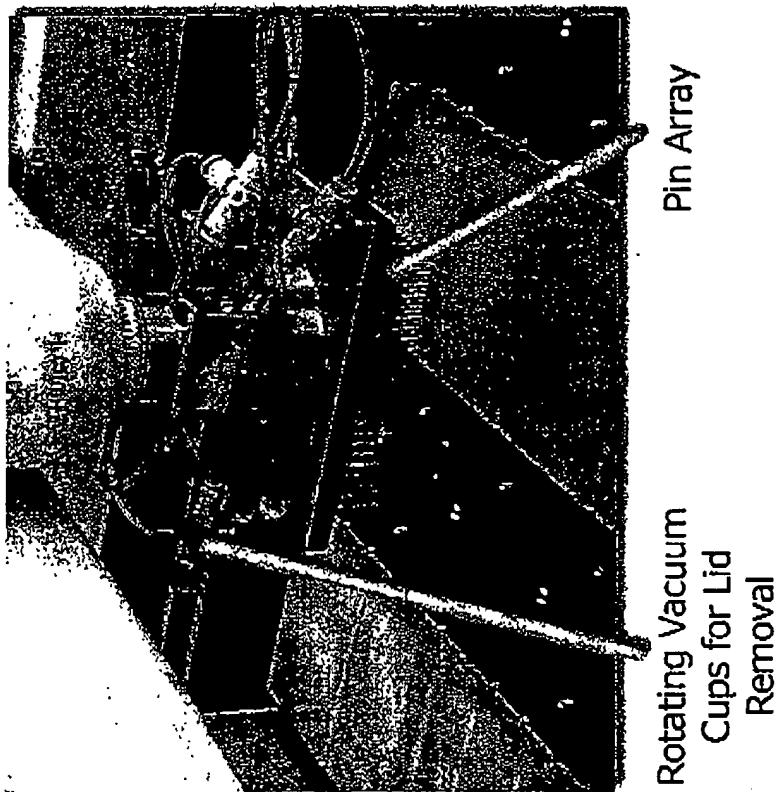
cf, df  
gj, dj  
ag  
gc

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qmin	#	max	code
U 11320	41	423.9	bf
	42	427.9 <sup>10/1</sup>	ag
	91	445.8	ad, ce, de
	92	511.9 11,	cj, dj
V 18218	43	428.9 512 ?	ea, fa, gf, ghdg
	44	560.8 ?	gj
	93	391.0 ?	
	94	428.9	cc, dc
W 2511	45	417.9 31,	ac
	46	507.8	
	95	500.8 ?	gj
	96	423.9	cj, dj
X 22027	47	530.8	bf
	48	626.8	ee, fe
	97	(861558)	
	98	514.8	cf, df
Y 18251 21	49	412.9 41	ac
	50	469.8	cj, dj
	99	320.0 762	cf, df
	100	381.9 61	bf
	101	? 209.2 580.8	
	102	442.9 31,	
	103	297.0 2561 712.2	
	104	173.3 243.1	
	105	243.1	
	106	195.2	
	107	392.8 ?	
	108	243.1	

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**FIGURE 23**

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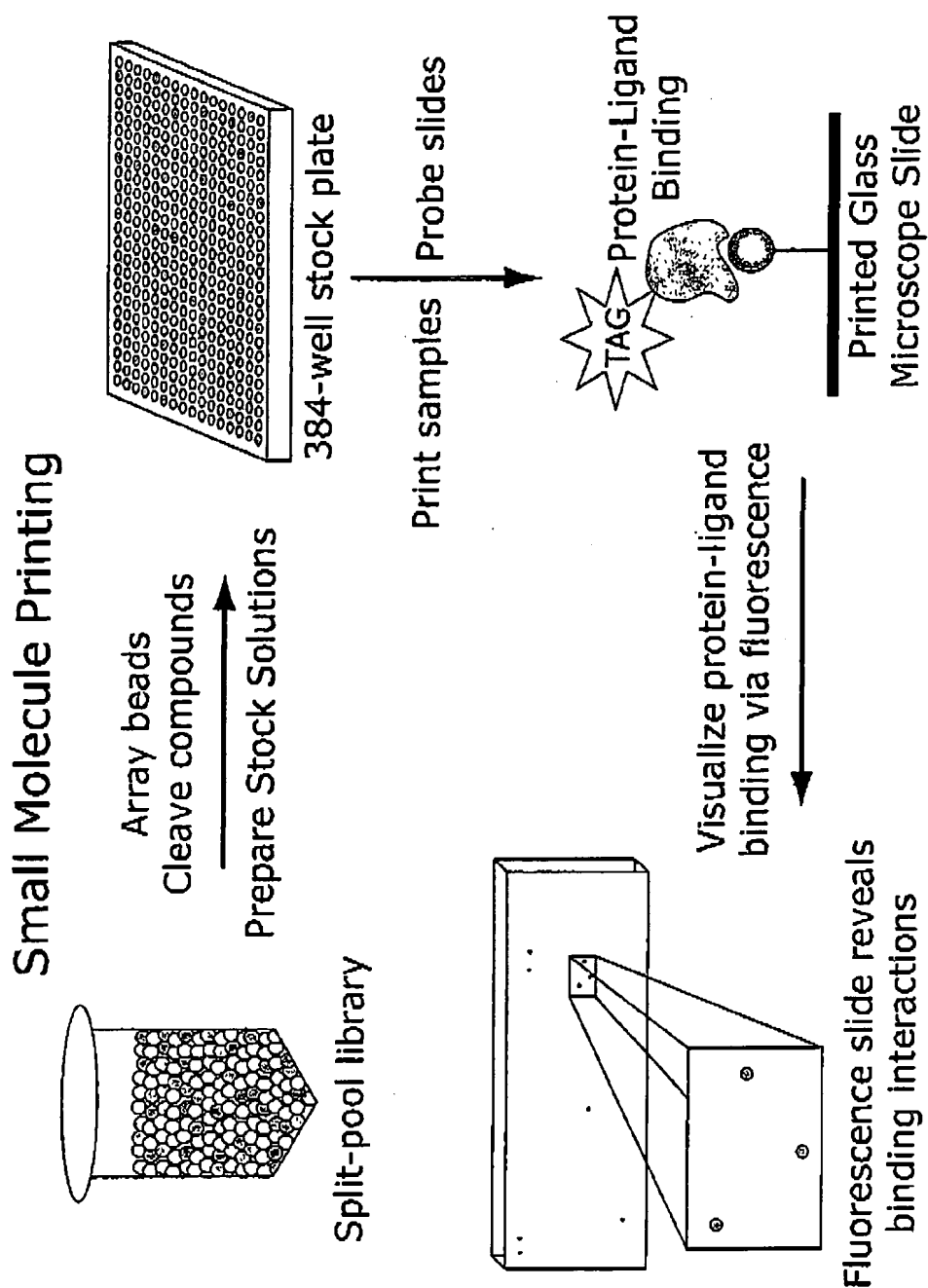
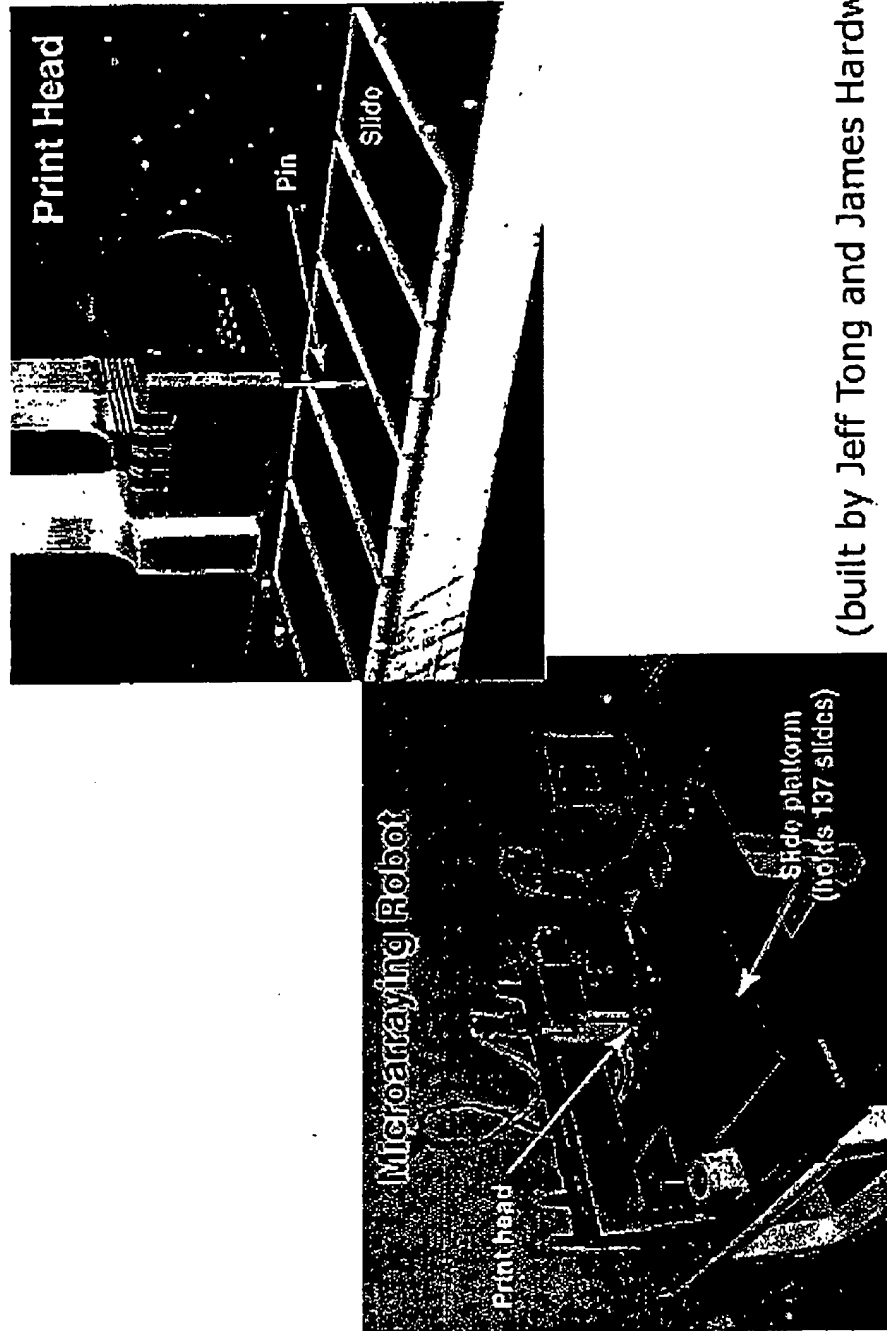


FIGURE 24

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# Small Molecule Microarraying Robot



(built by Jeff Tong and James Hardwick)

FIGURE 25